# Jeba Selvan Andrew P

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## Education

**Hindusthan Institute Of Technology ,Anna University, India** NOV 2022 – MAY 2026
Artificial Intelligence And Data Science – Bachelor of Technology CGPA: 7.89
**Concentration 1:** Machine Learning **; Concentration 2:** Natural Language Processing **; Concentration 3:** Generative AI

## Work Experience

**AI Voice Assistant – AI Backend & ML Developer** MAR 2024 – FEB 2025
Remote / Solo Project

- Built a fully functional AI voice assistant with a custom backend in **Flask**, integrating **Vosk** for real-time speech-to-text and **Meta's LLaMA 3** for natural language generation.
- Implemented and fine-tuned **LLaMA 3 (8B)** models locally using **llama-cpp-python**, optimizing low-level model loading and token streaming for efficient real-time responses.
- Experimented with **LoRA-based fine-tuning** to adapt the model to task-specific language patterns and improve contextual understanding.
- Designed a modular AI backend that handled audio processing, context management, and dynamic response generation with minimal latency.
- Used **NumPy**, **PyTorch**, and prompt engineering techniques to guide model behavior and ensure coherent, task-relevant outputs.
- Resolved real-time inference challenges including GPU/CPU optimization, thread-safe access to models, and memory efficiency.
- Created a seamless bridge between **neural network output** and Flask APIs, enabling conversational interaction through a browser interface with speech feedback.
- Independently managed the full lifecycle: system architecture, AI backend, ML integration, debugging, and deployment.

## Leadership Experience

**Hindusthan Institute Of Technology – NCC Cadet Sergeant** APR 2022 – Mar 2025
Tamil Nadu, India.

- Led a platoon of over 100 cadets, conducting regular drills, training sessions, and team-building exercises, resulting in a 80% improvement in unit performance during annual evaluations.
- Organized and supervised leadership camps, community service drives, and ceremonial parades, fostering discipline, teamwork, and civic responsibility among peers.
- Implemented structured training schedules and mentorship programs for junior cadets, enhancing retention and progression rates within the unit.
- Collaborated with senior officers and faculty to plan and execute inter-school competitions and NCC Day celebrations, earning commendations for coordination and execution.
- Received recognition for exemplary leadership, crisis management, and communication skills in managing cadet welfare and maintaining morale during intensive training periods.

## Skills

**Technical Skills:** python, Flask, PyTorch, NumPy, llama-cpp-python, Vosk Speech Recognition, LLaMA 3 (Meta), Transformer Architectures, Attention Mechanisms, Token Streaming, Prompt Engineering, Context Window Management, LoRA Fine-Tuning, Neural Network Optimization, Quantization Techniques (GGUF, INT4), Model Inference Pipelines, Real-time Audio Processing, Memory Optimization, Tokenization Techniques, Latency Reduction Strategies, JSON APIs, Jinja2 Templates, Git/GitHub, JavaScript, HTML/CSS, TailwindCSS, WebSockets, Prompt Engineering

**Software & Tools:** Visual Studio Code, PyCharm, Postman, Audacity, Anaconda, Adobe XD, Figma, Git CLI, Google Colab, llama.cpp, Hugging Face, Task Manager APIs, System Monitor Tools, WaveForm, Da Vinci Resolve

**Soft Skills :** Self Starter, Problem-solving, Organizational Skills, Risk Management, Startup Vision, Multi Tasking, Teamwork, Strong Communication Skills.

## Projects

**Predictive Maintenance System Using Machine Learning** AUG 2024 – NOV 2024

- Developed a predictive maintenance system for industrial equipment using supervised learning algorithms (Random Forest, SVM) to predict equipment failures before they occur.
- Collected sensor data from various machines, preprocessed it using NumPy and pandas, and applied feature engineering techniques to improve prediction accuracy.
- Trained multiple models to predict failures based on historical failure data, optimizing maintenance schedules and reducing downtime by 20%.
- Integrated the system with Flask for real-time notifications and reporting, allowing operators to act on predictions and prevent costly breakdowns

**Sales Forecasting with Time Series Analysis** JAN 2024 – MAR 2024

- Created a sales forecasting model using ARIMA and LSTM (Long Short-Term Memory) networks to predict future sales trends based on historical data.
- Applied data preprocessing and stationarity tests to ensure the accuracy of time series forecasting.
- Developed a web-based dashboard using Flask to visualize predictions and provide decision-making insights to business stakeholders.
- Improved forecast accuracy by 15% compared to traditional forecasting methods, aiding in inventory management and demand planning.

**Sentiment Analysis for Social Media Posts** MAY 2024 – AUG 2024

- Developed an NLP-based sentiment analysis tool to analyze social media posts, classifying them as positive, negative, or neutral using BERT and Transformers.
- Collected data from Twitter using Tweepy API and preprocessed text using NLTK and spaCy for tokenization, lemmatization, and stopword removal.
- Implemented a deep learning model with PyTorch to fine-tune the BERT model for improved sentiment classification.
- Visualized sentiment trends over time and developed a dashboard using Flask for real-time social media monitoring, helping businesses understand public opinion.

**Text Summarization Tool for Legal Documents** DEC 2023 – FEB 2024

- Developed an automatic text summarization tool using transformer models like GPT-3 and BART to summarize lengthy legal documents into concise, readable summaries.
- Trained the model on a legal dataset to improve accuracy in capturing key points and legal jargon.
- Integrated spaCy and transformers libraries for text preprocessing and fine-tuning the model for better accuracy.
- Implemented the tool in a Flask web application, allowing legal professionals to upload documents and receive summarized outputs in real-time.

**AI-Driven Content Generation for Marketing** MAR 2024 – JUN 2024

- Created a generative AI model that automatically generates marketing copy (e.g., advertisements, blog posts) using GPT-3 and OpenAI API for product promotions.
- Integrated the model with a Flask application to allow users to input product details and generate tailored content for different marketing campaigns.
- Developed a feedback loop for continuous improvement of the generated content, leveraging human-in-the-loop techniques for content quality control.
- Enhanced customer engagement by automating content creation, increasing content output by 40% while maintaining high quality and relevance